GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

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NARRATIVE

TO: Jeng-Hon Su

FROM: Eddie Gomez

DATE: March 10, 2022

Facility Name:	**InFlex, LLC**
AIRS No.:	04-13-005-0019
Location:	Alma, GA (Bacon County)
Application #:	28278
Date of Application:	February 22, 2022

Background Information

InFlex, LLC (hereinafter "facility") is a greenfield facility that will be located at 1107 West 12th Street, Alma, Georgia 31510 (Bacon County). Bacon county is in attainment for all criteria pollutants. The facility will manufacture polyolefin blown foam as a synthetic minor facility.

The manufacturing process will start by injecting a blowing agent (typically isobutane) at high pressure into one of the extruders (ID Nos. EXT1, EXT2, and EXT3) which contain polyolefin beads to produce foam sheets. The extruded and cooled sheet material will be transferred where it will be either rolled up or cut and packaged.

Production waste will be sent to a grinder (ID Nos. GND1) where the waste will be recycled into polyolefin pellets, and all the VOC retained in the scrap foam will be released. The compacted and recycled polyolefin pellets are then to be sent to the extruders to make foam sheets. Therefore, the extruders will make foam sheets using either virgin pellets or a mixture of virgin and recycled pellets.

Purpose of Application

On February 22, 2022 the facility submitted Application No. 28278 for the construction and operation of polyolefin blown foam manufacturing facility. The facility proposed an annual throughput cap of 184 tons of blowing agent that would result in 95 tons per year (tpy) of volatile organic compound (VOC) emissions.

A Public Advisory for this application was issued on March 2, 2022 and expired on April 1, 2022; no comments were received.

Equipment List

The table below includes process emission units of the greenfield facility.

Emission Units			Associated Control Devices	
Source Code	**Description**	**Installation Date**	**Source Code**	**Description**
EXT1	Extruder 1	2022	--	--
EXT2	Extruder 2	2022	--	--
EXT3	Extruder 3	2022	--	--
GND1	Grinder 1	2022	--	--

Emissions Summary

The process equipment will only emit volatile organic compounds (VOC). The blowing agent, typically isobutane, is the only VOC that would emit from the facility. The facility also proposed that, other chemicals may be used as the blowing agent; however, these chemicals would not contain any hazardous air pollutants (HAPs) or toxic air pollutants (TAPs) defined in the Georgia Air Toxics Guidelines.

After the blowing agen is blown into the polyolefin pellets to make foam, emissions are generated from the products as the blowing agent is gradually replaced by air in a process similar to osmosis. The Division used facility data to estimate the VOC content which remained in the foam prior to shipment to be approximately 0.0146 lb. VOC per lb. foam. This number was obtained as follows:

Information Assumed and Submitted by the Facility:

Blowing Agent to Polyolefin Feed Ratio: 3%
3 lbs. of blowing agent will be blown into 100 lbs. of polyolefin pellets to make 103 lbs. of foam.

Blowing Agent Retained in Foam: 50%
Out of the 3 lbs. of the blowing agent blown into the foam, 1.5 lbs. blowing agent is assumed to remain in the foam, while the other 1.5 lbs. blowing agent will be replaced by air and be emitted into the atmosphere.

Therefore,

Lb. Blowing Agent Remained in the Foam per lb. of Foam
= (1.5 lbs. blowing agent) / (103 lbs. foam)
= 0.0146 lb. blowing agent / lb. foam

Please note that the facility has not yet proved to the Division that 50% of blowing agent will be retained in the foam prior to shipment. If the blowing agent retention rate is lower than 50%, VOC emissions will be greater with the same amount of foam being produced. Therefore, the Division cannot accept the proposed 184 tons per year of blowing agent consumption as the limit that is equivalent to 95 tpy VOC emissions.

Instead, the permit will directly cap facility-wide VOC emissions at 95 tpy. The facility must track their actual VOC emissions by tracking the blowing agent usage and the amount of blowing agent that remains in the foam prior to shipment. The facility will be required to determine the amount of blowing agent remained in the foam after 30 days of storage in an initial test.

Before the test is conducted, it is assumed that the amount of blowing agent remained in the foam be 0.0146 lb. blowing agent/lb. foam. With this assumption, the estimate facility-wide VOC PTE is shown in the following tables.

Table 1: Facility-wide PTE without any limits					
Pollutant	EXT1	EXT2	EXT3	GND1	Total
NOx	0	0	0	0	0
CO	0	0	0	0	0
VOC	50.8	50.8	23.7	0	125
$PM/PM_{10}/PM_{2.5}$	0	0	0	0	0
SO_2	0	0	0	0	0
Total GHG	0	0	0	0	0
Single HAP	0	0	0	0	0
Combined HAP	0	0	0	0	0

As shown in the table above, the facility has the potential to emit more than 100 tpy VOC, and could potentially be a Title V major source for VOC. Therefore, the Division agrees with the facility to apply a VOC limit of 95 tpy to keep the facility minor under Title V.

Facility-Wide Emissions
(In tons per year)

Pollutant	**Potential Emissions**			**Actual Emissions**		
	Before Mod.	**After Mod.**	**Emissions Change**	**Before Mod.**	**After Mod.**	**Emissions Change**
$PM/PM_{10}/PM_{2.5}$	0	0	0	0	0	0
NOx	0	0	0	0	0	0
SO_2	0	0	0	0	0	0
CO	0	0	0	0	0	0
VOC	0	<95.0	<95.0	0	<95.0	<95.0
Max. Individual HAP	0	0	0	0	0	0
Total HAP	0	0	0	0	0	0
Total GHG (if applicable)	0	0	0	0	0	0

Regulatory Applicability

Federal Rules:

40 CFR 60 Subpart JJJ – National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins

The process equipment at the facility is not subject to any New Source Performance Standards (NSPS) in 40 CFR 60 and any National Emission Standards of Hazardous Air Pollutants (NESHAP) in 40 CFR 63. The only rule that could potentially be applicable is 40 CFR 63 Subpart JJJ "National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins." However, according to Table 1 of this Narrative, the facility is not a major source for single/combined HAP, so the facility is not subject to this rule.

Georgia State Rules:

Because the facility is located in Bacon County, which is not one of the listed counties in Georgia Rules for Air Quality Control 391-3-1-.02(eee)7. and 391-3-1-.02(qqq)7., the facility is not subject to Georgia Rule (eee) "VOC Emissions from Expanded Polystyrene Products Manufacturing" or Georgia Rule (qqq) "VOC Emissions from Extruded Polystyrene Products Manufacturing Utilizing a Blowing Agent."

The aforementioned process equipment pieces are subject to the visible emission limit (40 percent opacity) specified in Georgia Air Quality Control Rule 391-3-1-.02(2)(b) "Visible Emissions" and the PM emission limits specified in Georgia Air Quality Rule 391-3-1-.02(2)(e) "Particulate Emission from Manufacturing Processes." Because the equipment was constructed after July 2, 1968, its allowable PM emission rates are specified by Georgia Rule 391-3-1-.02(2)(e)1.(i), which is stated as follows:

$E = 4.1 * P^{0.67}$ for process input weight rate up to and including 30 tons per hour.
$E = 55 * P^{0.11} - 40$ for process input weight rate above 30 tons per hour.

Where E equals the allowable PM emission rate in pounds per hour and P equals process input weight rate in tons per hour.

According to Table 1 of this Narrative, none of the equipment is expected to generate any PM emissions. Therefore, compliance with the GA Rule (b) and GA Rule (e) standards is always expected.

Permit Conditions

Condition 2.1 caps the facility-wide VOC emissions below 95 tpy so that the facility remains a synthetic minor source under Title V of 1990 the Clean Air Act (CAA).

Condition 2.2 includes the GA Rule (b) visible emission standard for each process.

Condition 2.3 includes the GA Rule (e) PM emission standard for each process.

Condition 6.2 requires that, within 120 days after achieving the maximum production rate at which the extruders will be operated, the facility conduct a one-time performance test to determine the VOC content of foam sheets after storing it in the product storage for at least 30 days. Note that the extruders (ID Nos. EXT1, EXT2, and EXT3) make foam sheets using either virgin pellets or a mixture of virgin and recycled pellets; foam sheets made of the two different raw material streams are expected to contain the same amount of VOC before being shipped offsite.

Condition 7.1 requires that the facility submit written notification to the Division within 15 days after its initial startup.

Condition 7.2 requires that the facility track all VOC consumption at the facility on a monthly basis. The totals would be the monthly VOC input to the facility.

Condition 7.3 requires that the facility record the amount of foam that is sold and shipped out.

Condition 7.4 includes an equation to track monthly VOC emissions from the facility. The facility must use the VOC content data obtained in accordance with Condition 6.2, the VOC input data obtained in accordance with Condition 7.2, and the shipped records obtained in accordance with Condition 7.3 to calculate monthly VOC emissions.

Condition 7.5 requires that the facility calculate 12 consecutive month total VOC emissions using records obtained in accordance with Condition 7.4. If any such record equals or exceed 95 tpy, the facility must notify the Division and explain how they intend to attain future compliance with the VOC synthetic minor limit specified in Condition 2.1.

Because the facility is predicted to be a synthetic minor source, it will be subject to a flat SM permit fee. Condition 8.2 includes this fee requirement.

Toxic Impact Assessment

The facility is a greenfield facility. However, it will not emit any toxic air pollutants (TAP). The facility need not conduct a toxic impact assessment.

Summary & Recommendations

I recommend that Permit No. 3086-005-0019-S-01-0 be issued to the facility. A Public Advisory was issued on March 2, 2022 and comments were due by April 1, 2022, no comments were received. The Stationary Source Compliance Program (SSCP) is responsible for inspections and complaints/investigations.